**Amendment to the Claims:**

1. (Currently Amended) A method of determining total left ventricular (LV) interior volume during a plurality of phases of a cardiac cycle, said method comprising:

acquiring a series of cardiac cine images with an imaging device for imaging interior portions of a mammal body including an end-diastole cardiac image at an end-diastole (ED) phase of the cardiac cycle and at least a second cardiac image at a second phase of the cardiac cycle, the second phase being different from the end-diastole phase;

delineating at least one of endocardial and epicardial contours of a left ventricle (LV) in the end-diastole cardiac image

calculating an end-diastole interior volume of the left ventricle (LV) in the end-diastole (ED) phase;

calculating an end-diastole phase intensity value ($I_{T,ED}$) inside the at least one of the endocardial and epicardial contours of the end-diastole cardiac image;

applying the at least one of the endocardial and epicardial contours delineated for the end-diastole (cardiac) image to the second cardiac image;

calculating a second phase intensity value for a region of the second cardiac image inside at least one of the end-diastole phase and endocardial contours applied to the second cardiac image;

calculating a left ventricular interior volume in the second cardiac phase by weighting the end-diastole interior volume in accordance with a ratio of the second phase intensity value and the end-diastole phase ($I_{T,ED}$) intensity value; and

at least one of storing the left ventricular (LV) interior volume in computer memory and displaying the end-diastole and second cardiac images.

2. (Previously Presented) The method according to claim 4, further comprising calculating a mean intensity for myocardium and blood voxels at ED based on the delineated endocardial and epicardial contours.

3. (Previously Presented) The method according to claim 2, further comprising using the mean intensities for compensating myocardium enclosed in the endocardial contours delineated at ED during subsequent phases of the cardiac cycle.

4. (Currently Amended) A method of determining total left ventricular (LV) interior volume during a cardiac cycle from a cardiac cine series, said method comprising the steps of:

delineating endocardial and epicardial contours of a left ventricle in all slices of said cardiac cine series acquired with an imaging device at end-diastole (ED),

calculating a total ED intensity value ($I_{T,ED}$) inside at least one of the contours at the ED,

applying the contours delineated at ED to all phases of the cardiac cycle, and

calculating the total LV interior volume based on (1) intensity values for each of the phases inside the endocardial contours delineated at ED and applied to all the phases, and (2) the total ED intensity value ($I_{T,ED}$),

wherein the total LV interior volume ($V_{LV}$) is calculated as

$$V_{LV} = \sum_{i=1}^{n} V_{ED,i} \frac{I_{T,i}}{I_{T,ED}},$$

wherein

n is a total number of slices comprising the LV total interior volume,

$V_{ED,i}$ is a calculated volume of slice number i of the LV at the end-diastole of the LV,

$I_{T,i}$ is a detected intensity of slice i within the endocardial contour; and

at least one of storing the total or end-diastole left ventricular (LV) interior volume in computer memory and displaying an image depicting the total or end-diastole LV interior volume.

5. (Previously Presented) The method according to claim 1, wherein the series of cine images is a short-axis study of a heart including multiple slices covering at least the left ventricle and multiple phases within the cardiac cycle.

6. (Previously Presented) The method according to claim 1, further comprising determining the LV volume from another series of cine images acquired at different stress level, whereby the temporal behaviour of a heart as a function of increasing stress is determined.

7. (Cancelled)

8. (Currently Amended) The method according to claim [[7]] 1, wherein said device for imaging inside parts of a mammal body is a Magnetic Resonance (MR), Computer Tomography (CT), Nuclear Medicine (NM) or Ultrasound (US) device.

9. (Original) The method according to claim 8, wherein an MRI study comprises Steady State Free Precession (SSFP) images.

10. (Previously Presented) The method according to claim 1, further comprising compensating for heart motion during the acquisition of the series of cine images.

11. (Previously Presented) A computer-readable medium having stored thereon a computer program controlling a computer to perform the method according to claim 1.

12. (Previously Presented) The computer-readable medium according to claim 11, wherein a first code segment of the program automatically delineates the endocardial and epicardial contours.

13. (Previously Presented) The method of claim 1, further including: deleting a contribution of a myocardium enclosed in the endocardial and epicardial contours.

14. (Cancelled)

15. (Previously Presented) The computer-readable medium of claim 11, wherein a code segment of the program calculates the total LV volume by:

dividing a first slice intensity value ($I_{T,i}$) associated with a first slice by the total ED intensity value ($I_{T,ED}$) to form a first fraction intensity value;

multiplying the first fraction intensity value with a calculated interior volume of the first slice of the LV at the ED to form a first slice volume of slice volumes; and

summing the slice volumes to form the total LV interior volume.

16. (Currently Amended) A method of determining total left ventricular (LV) interior volume during ~~a phase of~~ a cardiac cycle from a cardiac cine series acquired with an imaging device, said method comprising the acts of:

delineating endocardial contours of a left ventricle in all slices of said cine series at end-diastole (ED),

applying the endocardial contours delineated at the ED to image slices of [[the]] a selected phase of the cardiac cycle, [[and]]

calculating the total LV interior volume of the selected phase based on phase intensity values inside the endocardial contours delineated at the ED and applied to the image slices of the selected phase;[[,]]

[[and a]] calculating total ED intensity value ($I_{T,ED}$) inside at least one of the endocardial contours at the ED;

calculating a LV interior volume in the selected cardiac phase by weighting an ED interior volume by a ratio of the phase intensity value ($I_T$) at the selected phase and the total ED intensity value ($I_{T,ED}$);

at least one of storing the left ventricular (LV) interior volume in the selected cardiac phase in computer memory and displaying an image depicting the LV in the selected cardiac phase.

17. (Previously Presented) The method of claim 16, wherein the calculating act includes the acts of:

dividing a first slice intensity value ($I_{T,i}$) of the phase intensity values associated with a first slice by the total ED intensity value ($I_{T,ED}$) to form a first fraction intensity value;

multiplying the first fraction intensity value with a calculated interior volume of the first slice of the LV at the ED to form a first slice volume of slice volumes; and

summing the slice volumes to form the total LV interior volume.

18. (Previously Presented) The method of claim 16, further comprising the acts of:

manually delineating an endocardial contour on the end-diastole cardiac image of a slice to form a manual contour;

calculating the end-diastole image volume based on a signal intensity due to blood contained in the image;

forcing the end-diastole image volume to coincide with the manual contour using a calculated factor; and

applying the calculated factor to intensity sums of a corresponding slice of a second cardiac image.

19. (Previously Presented) The method of claim 1, further comprising the acts of:

manually delineating an endocardial contour on the end-diastole cardiac image of a slice to form a manual contour;

calculating the end-diastole image volume based on a signal intensity due to blood contained in the image; and

forcing the end-diastole image volume to coincide with the manual contour using a calculated factor; and

applying the calculated factor to intensity sums of a corresponding slice of the second cardiac image of the slice.

20. (Previously Presented) The computer-readable medium of claim 11, further comprising:

a code segment for calculating an end-diastole cardiac image volume based on a signal intensity due to blood contained in an image surrounded by a manual contour formed by manually delineating an endocardial contour on the image;

another code segment for forcing the end-diastole image volume to coincide with the manual contour using a calculated factor; and

a further code segment for applying the calculated factor to intensity sums of a corresponding slice of a second cardiac image.